

## C L A I M S

**REPLACED BY  
ART 34 AMDT**

1        Sensor unit for picking up mechanical vibrations, sound and ultrasound,  
with at least one piezoelectric foil strip (piezo strip) (1; 1'; 1'') as a sensor element,  
5        said piezo strip having signal wires (5) attached thereto for transporting out  
electrical signals representing vibration, sound or ultrasound picked up,  
c h a r a c t e r i z e d

             - in that said piezo strip (1; 1'; 1'') at two opposite ends is held in flat support  
parts (3; 3', 13), and  
10        - in that at least one further strip (2; 2'; 12) of e.g. plastic material is held in  
the same support parts so as to extend in a curved manner along said piezo strip  
and provide at least one space between the strips.

2.       The sensor unit of claim 1,  
15       c h a r a c t e r i z e d   i n   t h a t   the support parts are separate support pieces  
(3) with holding details (6) for the strips, e.g. pockets.

3.       The sensor unit of claim 1,  
c h a r a c t e r i z e d   b y   two such further strips (2, 2'), one outside each surface  
20       side of said piezo strip (1).

4.       The sensor unit of claim 1, 2 or 3,  
c h a r a c t e r i z e d   i n   t h a t   said further strip(s) (2, 2') is/are a little stiff,  
thereby automatically tending to tension said piezo strip (1).

25       5.       The sensor unit of claim 4,  
c h a r a c t e r i z e d   i n   t h a t   said further strip(s) (2, 2') is/are attached  
loosely to at least one of the support parts (3), by being inserted into a pocket (6).

30       6.       The sensor unit of claim 1,  
c h a r a c t e r i z e d   i n   t h a t   the space between said piezo strip (1') and said  
further strip (2) is occupied by a substance (4) having the ability to transfer  
pressure, e.g. a silicon substance, said piezo strip (1') and said further strip (2)

Hence, in a first aspect of the present invention there is provided a sensor unit for picking up mechanical vibrations, sound and ultrasound, having at least one piezoelectric foil strip (piezo strip) as a sensor element, the piezo strip having  
5 signal wires attached for exporting electric signals representing vibration, sound or ultrasound being picked up. The sensor unit in accordance with the invention is characterized in that the piezo strip is, at two opposite ends, held in flat support parts, and in that at least one further strip of e.g. plastic material is held in the same support parts so as to extend in a curved manner along the piezo strip,  
10 thereby to provide at least one space between the strips.

In a preferred embodiment of the invention, the support parts are separate support pieces having holding details for the strips, for instance pockets.

15 In another preferred embodiment, the sensor unit comprises two such further strips, one outside each flat side of the piezo strip.

The further strip/strips may be a little stiff, and will then automatically tend to stretch the piezo strip. Also, the further strip/strips may be held loosely in at least  
20 one of the support parts, by being inserted into a pocket.

In an important embodiment of the invention, the space between the piezo strip and the further strip is occupied by a substance with the ability to transfer pressure, for instance a silicon substance, the piezo strip and the further strip  
25 being substantially symmetrically curved outwards centrally to bound the substance.

In another embodiment of the invention, the support parts are constituted by welding rims for a bubble consisting of two semi-ovoid foil pieces, and the at least  
30 one further strip constitutes at least one of the two foil pieces. The piezo strip may then be arranged outstretched in the space right in between the two foil pieces. In addition, the piezo strip may be attached along the whole welding rim, thereby to constitute a boundary between two closed spaces. At least one of the two closed spaces may be filled by a substance having the ability to transfer a pressure. One